

WHAT IS CLAIMED IS:

1. A method for forming a semiconductor device, comprising the steps of:

depositing a pad oxide film and a nitride film on a silicon substrate, forming a 77° angle trench by photo etching and dry etching, depositing a HLD oxide film and then performing device insulation;

performing a cell Vt implant process on the resulting material and then forming a first photoresist pattern for adjusting a capacitor Vt;

defining a capacitor region by performing dry etching using the HLD oxide film and the first photoresist pattern as a barrier layer;

performing an implant process on the resulting material;

forming a gate oxide film on the resulting material, depositing a doped poly and forming a second photoresist pattern;

forming a trench capacitor and a gate by photo etching and dry etching using the second photoresist pattern; and

depositing an interlayer film on the resulting material, planarizing the same, forming a metal contact and performing a bit line and wiring process thereon.

2. The method of claim 1, wherein the dry etching process for defining the capacitor region is performed at 80 to 90 degrees.

3. The method of claim 1, wherein a cleaning process is performed with an ammonia-based cleaning solution after definition of the capacitor region.

4. The method of claim 1, wherein four inside surfaces of the capacitor are all defined as a capacitor region to thus increase the capacitance of the capacitor by performing an additional dry etching process using the HLD oxide film and the first photoresist pattern as a barrier layer,

5. The method of claim 1, wherein a tilt implant process is performed in order to implant a dopant uniformly on the side faces and bottom of the trench capacitor when the implant process is performed on the resulting material on which the capacitor region is defined.